

Patent Abstracts of Japan

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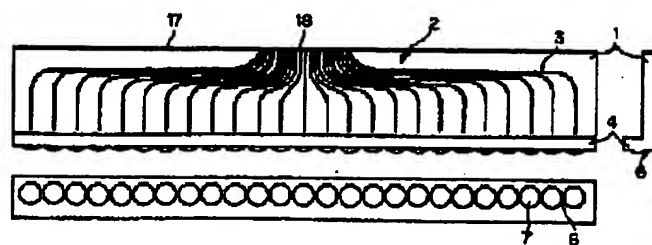
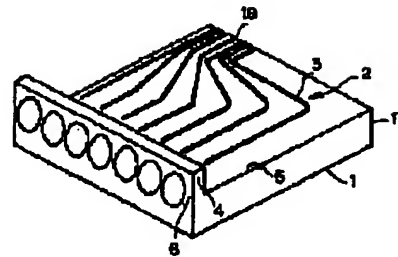
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APPLICANT : SHARP CORP;

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TITLE : OPTICAL READ DEVICE PROVIDED
WITH INTEGRALLY MOLDED
WAVEGUIDE AND MANUFACTURE
THEREOF



ABSTRACT : PROBLEM TO BE SOLVED: To provide a highly accurate and highly reliable device for attaining an integrally molded waveguide and the manufacturing method so as to eliminate the disadvantages of the dispersion of performance and the low level of productivity as an optical read device due to the conventional method of separately preparing lens and waveguide and connecting both.

SOLUTION: A waveguide pattern 2 which includes many waveguides 3 is formed on the upper surface of a substrate 1, and it is made of a transparent resin such as acrylic resin, and the material for the waveguide 3 is of a refractive index higher than that of the substrate 1 and made to function as the waveguide. A projected part 4 is provided on one end of the substrate 1, the end face 6 is provided with a surface vertical at least to the substrate upper surface 5, and a column of microlenses 7 is formed there so as to bring the end part of the waveguide near a lens focusing surface. The entire element parts in the figure including the substrate are constituted by injection molding. Thus, integral molding is performed together at once with extremely high accuracy by using a highly accurate die, and high productivity is ensured.

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